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                 20          30          40          50          60
TCATGTTTCA GGAACGACG AATTTATCCC GTCGTTTCTT TTCCGTT TTAACTCATA

        70          80          90         100         110         120
TCTCTTCCTG GATCCTTCAG AGCTCTTGTC AATTCCTCAC GTTTTTTTTT GTTTTTTCGT

       130         140         150         160         170         180
CGTTTAATTG TGGAAACACA TATCCGTCCT CTTTGAAACA GCATCAGAAA ACTTTCTGCT

       190         200         210         220         230         240
CTCCGTGTCC TTCTACTTAC TCTGATTGCC TTAGTTAGTC ACATCGCAAG CAACAACTAA

       250         260         270         280         290         300
CTGCCAATGG GAGGAGCCAG TTGGAGCAGG GTGCGTGCTC GGTGCTCTTT TCAGAAGGTT

       310         320         330         340         350         360
TTCTCTTGTG CCAGCATGCT TTTTTGAGGC TGTGTCATCA CAATGAACAT GTGTGAGTTC

       370         380         390         400         410         420
ATCCGTCTGG ATTATTCTTT TTCTTACGTC TTCTGAGTAC TTCATACTTT CCAAATTTTT

       430         440         450         460         470         480
CAACTGAACT TTTCTTCTTT TCTCATTGAA GTGGTTTGGT TTTGGTCGCG TGATCAACGG

       490         500         510         520         530         540
ATCCTACTTT TTTGAAACAA AATGTTTTTG AAGTTTCACA GACTGATTTC GGGGTTTTTT

       550         560         570         580         590         600
CAAAGAATAT ATTCCCTCTC GAGCAAGAGA AAATTCCAGA AAATAGTAGT TTTTTTCAAT

       610         620         630         640         650         660
TAGTCGTTTC ATTTGTACTA GCTAAAAAAC TTGCAACTTA TGGCTTTAAA ACATGTGTTG

       670         680         690         700         710         720
GCTTCATACA AAAACATTTA ACTAGTGTTT TTCCAGTTTT GTGTTCGTTT CATTTTCTCA

       730         740         750         760         770         780
CCAAACTGAC AATAATTACT TTCTGTGAAC GTGTTTTGTA GGCAAGCTCC CGAATATTTT

       790         800         810         820         830         840
TTTCTCTTCT CACGTCTTGT TATTTTCTCG ATTTTATTTT CTGAATCTGT GCGGTTTTCA

       850         860         870         880         890         900
ATCAATTTGA TTGCGATAAT TATTCTATCA GAAATATATT TTCAGAAATC CAAATACTCC

       910         920         930         940         950         960
AGGTGCCAAT GCGGTGAAAG AAAATTATGA AGTTTATTCC TGAAATCACA CTACTCTTGC

       970         980         990        1000        1010        1020
TTTTATTTGT ACACTCTACA CAGGTTAGTT GGTTGATTCT AGATCTCTTG CCTCCTAGCT

      1030        1040        1050        1060        1070        1080
TGCAAGGATA ATATAATTGA ATTGTTTTTG AGGAGTGCAA AGATTGAATA GTTTTCTATA

      1090        1100        1110        1120        1130        1140
TTTAGGCTAA AGGAAAACGA CGGAAATGTC CGGAGGGTGC GTGGTCGGAA GGAAAGATTA
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Fig. 1
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1150        1160        1170        1180        1190        1200
TGAACACGAT ATGAGCAAC TACACGAAAA TGTTGCCCGA  GGAGGAC AGCGTACAAG

1210        1220        1230        1240        1250        1260
TTAATATTGA GATTCATGTA CAGGTTGGTA GACTCTATAA TTGCACACCA ATATGTGAAA

1270        1280        1290        1300        1310        1320
GTTTTCTTTA AAATTAAACT GCTGTAAATG ACTTTTGAAT AAGTTTATCA GATAGAAATT

1330        1340        1350        1360        1370        1380
GTCTGAACTT TTCGATTCAA ACTTTCCGAA CTTCAAAGCG GTTCCAAATT ACTCACTTCC

1390        1400        1410        1420        1430        1440
ATTTATCTCT TTGCTACAAT TTCTCCCACA AAGCCTTTTT CTTCATTTAA CGTTCTTTTT

1450        1460        1470        1480        1490        1500
TATGTCGTTG TTCTTACAAA CAATTTCGTC TCCTTGATGA ACTGCTTGAA CTGAGAATAG

1510        1520        1530        1540        1550        1560
TCACATGAGG ATAAATTTGA TGGAATGACA AGTTTTGTGC CCAGAAGGCA GTTTTGCACT

1570        1580        1590        1600        1610        1620
GAACTTGTTC AGTTGCAGAC ACATCTCAAA ACACAGAAGA TGAGTGGAAA ACTAGTGAGA

1630        1640        1650        1660        1670        1680
GACTGCCAAA AGTCGAAGGG ATAATGAAAA TTTGTTGCAA ATGAATTCTG CGAAGTTATG

1690        1700        1710        1720        1730        1740
TGAAAAATTA TTGGATTGGG AGTTGTGGGA GTGAAGAGAT GGGTCAAAAG CCATCAATCT

1750        1760        1770        1780        1790        1800
TGAATGCTTC GGTCAAAGAT TTGTTTCTCA TATGTTTACA ACACTGAAAA CAATCTATCC

1810        1820        1830        1840        1850        1860
TAGAAATGTT TGAACCACCC TCTAAAGTCC TTCCGTATAT TTTTTCATCT TTATACCGAC

1870        1880        1890        1900        1910        1920
CAGAATTCAA GAGTTGTTTG AAATAACTTC CTCTTTTTTG GAGAATATGT ACTCAGATTT

1930        1940        1950        1960        1970        1980
TTACATTCAA AATTTATATA TTTTCAAATA GAAAAAGTGC CAAGTACCAG AAACTTTTAT

1990        2000        2010        2020        2030        2040
CAAGTTGGCG GCACTTTGGA GAGTGAATTT GATGAAAAAG TGTTTGATAA GTTTGTCGGG

2050        2060        2070        2080        2090        2100
CAAACTGGTC CCCTGGGTGG GGAAATGGTG GCATTTTTGG AAACATTTTC ATAGTCGAAG

2110        2120        2130        2140        2150        2160
AAGTGGAACA AGAAAATTGG AAAATAGAGA TACATATGTA TATGAAAATA GAATTGAACA

2170        2180        2190        2200        2210        2220
GGAACTTATT TTTATTTTCA GGATATGGGA AGCTTGAATG AAATATCATC CGACTTTGAA

2230        2240        2250        2260        2270        2280
ATTGACATTT TATTCACTCA ACTGTGGCAT GACTCGGCAC TTTCTTTTGC TCATCTTCCG
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Fig. 1
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      229[redacted]      2300       2310       2320[redacted]      2330       2340
GCTTGTAAGC GGTAAGAAAT CTTTGTATTA GAAGGGAAAA ATATTTAAAT TAATGAAATT

      2350       2360       2370       2380       2390       2400
TCAGAAATAT CACAATGGAA ACACGACTTT TACCTAAGAT TTGGTCTCCA AACACGTGTA

      2410       2420       2430       2440       2450       2460
TGATTAATTC AAAACGAACA ACCGTCCATG CATCACCATC GGAAAATGTG ATGGTTATTC

      2470       2480       2490       2500       2510       2520
TGTACGAGGT ATGATTTTTG ATTTTGTGAC GTCACAAACA GAGCATGTCT AAGGGCATGT

      2530       2540       2550       2560       2570       2580
TGTAGCAAGA AAAAAACGGA TTCTTGTCTC TGTCGACGTT TCCTAAGTAT TGTGAATTAT

      2590       2600       2610       2620       2630       2640
TTATAATACA TCACTCTAAT TACGTGAATA CTTACACCTT TAACTGGGTG AAGGATAAAA

      2650       2660       2670       2680       2690       2700
TAGAGAAGGA GACGTTGAAA AAGCTCTTCG GTAGATTAAA GAGTCTAGAA TCGACATATG

      2710       2720       2730       2740       2750       2760
TATTCATGTT TCTCGGTTCA GGGAAATAAG TGATTTTGGC GAAAAAGAGT TAGACGACAT

      2770       2780       2790       2800       2810       2820
TTTTTAGAAA ACTAAAACTA TATTCTCGAA CCCAAATCAG TCTAATGGTT TTCAGCAAAA

      2830       2840       2850       2860       2870       2880
AGTATGAAAT ATACAATGTT TGTTTCAGAA TACCCAGTAC AAAATTTGAA GTTTTTCAGA

      2890       2900       2910       2920       2930       2940
ATGGAACAGT CTGGATTAAC CATCGTCTTA GTGTCAAATC ACCTTGCAAT TTGGATCTGC

      2950       2960       2970       2980       2990       3000
GACAGTTTCC TTTCGATACT CAAACTTGCA TATTAATCTT TGAATCCTAT AGTCATAACT

      3010       3020       3030       3040       3050       3060
CAGAAGAAGT TGAACTTCAT TGGATGGAAG AAGCTGTCAC ATTAATGAAG CCAATTCAAC

      3070       3080       3090       3100       3110       3120
TTCCTGACTT TGATATGGTT CATTATTCAA CTAAAAAGGA AACTTTACTC TATCCAAACG

      3130       3140       3150       3160       3170       3180
GGTACTGGGA TCAGTTTCAA GTTACTTTCA CTTTCAAACG ACGATATGGA TTCTATATTA

      3190       3200       3210       3220       3230       3240
TTCAAGCCTA TGTTCCAACA TATCTTACAA TCATTGTATC TTGGGTTTCA TTCTGCATGG

      3250       3260       3270       3280       3290       3300
AACCAAAAGC TCTGCCGGCA AGAACAACTG TCGGAATCTC ATCTCTTCTA GCTCTTACTT

      3310       3320       3330       3340       3350       3360
TCCAGTTTGG AAATATTTTG AAAAATCTTC CAAGGGTTTC ATATGTGAAA GGTTTGTTTT

      3370       3380       3390       3400       3410       3420
TTTTCTTTTT CAAACAAATA AAAAAAAAGA TAAACAAATA TTTGTTTCAG CAATGGATGT
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Fig. 1
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3430        3440        3450        3460        3470        3480
GTGGATGCTT GGATGCATAT CATTTGTCTT CGGAACCATG GTAGAATTGG CATTTGTTTG

3490        3500        3510        3520        3530        3540
TTACATTTCC CGTTGTCAGA ACAGCGTAAG AAAGTGAGTT GGCATAAGAG TTTTCTCACG

3550        3560        3570        3580        3590        3600
TGGAGGGAAG TAATTAAATT TTGGGTGTCA TATGAAAATA TCAAAAACAA TATCAGGAAA

3610        3620        3630        3640        3650        3660
TTTGAATTTCA CTATGATTTC GTAGTAAACA AATTACAGCG CGGAACGACG ACGGGAACGA

3670        3680        3690        3700        3710        3720
ATGAGAAATT CTCAGGTGTG GGCAAACGGA TCGTGTAGAA CTAGAAGCAA CGGGTATGCA

3730        3740        3750        3760        3770        3780
AACGGGGGAT CTGTAATCTC ACATTATCAT CCAACAAGCA ATGGAAATGG GAATAATAAT

3790        3800        3810        3820        3830        3840
CGACATGATA CACCTCAAGT TACTGGAAGG TTAGCAATCT CTATGATAGC ATTTATCAAT

3850        3860        3870        3880        3890        3900
TATTAAAGAA CTCTGGAATT AGTTTTTAAA GTATAAATAA ATCTCTATTT CTTGCGACCT

3910        3920        3930        3940        3950        3960
ACATTGAACT TAATAGTTAT GTTTTACAGA GGATCACTTC ATCGAAACGG GCCACCATCT

3970        3980        3990        4000        4010        4020
CCATTAAACC TTCAAATGAC TACATTTGAT TCGGAGATCC CTCTGACTTT TGATCAGGTG

4030        4040        4050        4060        4070        4080
AGTCTTACAT TGAGTTCAAA CTTTTTGAAT TTAAGCGTTC TATCTGATAA AGTTCTTCGG

4090        4100        4110        4120        4130        4140
TGGTTTTATA ATTTTTGATT CATAAACTTA CCCACTCCTT TCTCACTAAC ATTTTACCCT

4150        4160        4170        4180        4190        4200
GTTCAGCTGC CAGTTTCCAT GGAATCCGAT AGACCCCTGA TTGAAGAGGT AACTGTGAAA

4210        4220        4230        4240        4250        4260
GTAGTCAATT AATTCCCTGT GTTTCTACCC CACTCAATCC TTTTGTATTT TTTGTTCAGT

4270        4280        4290        4300        4310        4320
CTATCCACTA TCAATGTCTT ATCACCTCTA GATACTGTTT AGAAGAAAAT ATTGTTCACA

4330        4340        4350        4360        4370        4380
GTTATGGAAA TCACATATAC TTTGTTCTGG AATTGTATAT GTATGCTTTG AAAAAGCACA

4390        4400        4410        4420        4430        4440
TTAGAATACT ACAAACATTA GTTTCCATCA GATTTTTGAT TTATCAAAAC CGTTATATTA

4450        4460        4470        4480        4490        4500
GACACTCTTA AGTTATCATA TTCTAATTTC CAAGAATGTT ATATTTTGAA GAAGCCGGTG

4510        4520        4530        4540        4550        4560
ATTGTCAAAA AGATTGAAAA CTCCGAGTTT CTATATATGC GAAATTTTCA CTTCAGCCCA
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Fig. 1
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      457[redacted]      4580       4590       4600[redacted]      4610       4620
CACACACACA CACACATTCA CGAAACTTTG TGTTGTTTAT GTTACTTATA TGTTATCTTT

      4630       4640       4650       4660       4670       4680
TCTGTCTGAT CATGGTTTTC GGACTGAAAT TGTGTTAATC GGAAGTTATA TGTGAGCCAC

      4690       4700       4710       4720       4730       4740
ATTGATTAAA CCTGTGAGAG ATGCCCATTT GTACTCATTT TACGACTGTC TCATGTCCAA

      4750       4760       4770       4780       4790       4800
ACACCATGTT TATTGTAATT ACCAGGCTAC TATTTGCAGA TGCGATCAAC ATCACCACCT

      4810       4820       4830       4840       4850       4860
CCACCATCTG GATGTCTGGC CAGATTCCAT CCGGAAGCAG TGGACAAATT CTCCATTGTA

      4870       4880       4890       4900       4910       4920
GCTTTTCCAT TGGCATTTAC AATGTTTAAT GTTAGTTAAT CCACAGTTAA AAATTCCCAT

      4930       4940       4950       4960       4970       4980
AATCATAAAT ATCTCGACTT TTCAGCTTGT CTACTGGTGG CACTATTTGT CTCAAACTTT

      4990       5000       5010       5020       5030       5040
CGATCAAAAC TATCAGTGAT TGAAGTTTAT CCCTTTTAAT TCCAATAATT CACAGTTGCC

      5050       5060       5070       5080       5090       5100
GGTATCTACC TCCATTCTTT TCCGATGATT CGCAGTTTTT CACAGGGTTC AAATGTATCT

      5110       5120       5130       5140       5150       5160
CGTTCAATCT TTTTATGGTT ATTTCTCTTG AATGTCCATT TTAATATTTA TAGAACACTT

      5170       5180       5190       5200       5210       5220
TTATGTACAT TGTGTTGGTA TTCAATTCGA AAAACAATGA AATTTATTTC TAAATAACTG

      5230       5240       5250       5260       5270       5280
CGTTTCTGGG GTTTCTATCA GCACTTACTA GCTGACAAAA ACTTTTCCGT ATTCGGAATT

      5290       5300       5310       5320       5330       5340
AGATTTTTAT GCAAGCAATG TTTCATTTTT ACACAGTATA GTATTTATTC TTACTTTTGA

      5350       5360       5370       5380       5390       5400
TTATATTGCT CGCACCCTAA ATGACAGGTA TTAGAAATTA ACCGCTTTTC AGAGTATTTT

      5410       5420       5430       5440       5450       5460
TAATCTTCTT AGTACTAGTT TAGTTCTTTA AATAAGAAAC CATCTAGTTT TTCATTATCA

      5470       5480       5490       5500       5510       5520
CTCAACTTCA GTCGGACAAA TTTTAAATTT TTTACTCGAT AAAAAAATTT TATAATTCAG

      5530       5540       5550
ACAAATTATG TCTTCTCATT TTTGATCGCT
```

Fig. 1
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                20        30        40        50
ATGAAGTTTA TTCCTGAAAT CACACTACTC TTGCTTTTAT TTGTACACTC

        60        70        80        90       100
TACACAGGCT AAAGGAAAAC GACGGAAATG TCCGGAGGGT GCGTGGTCGG

       110       120       130       140       150
AAGGAAAGAT TATGAACACG ATCATGAGCA ACTACACGAA AATGTTGCCC

       160       170       180       190       200
GACGCGGAGG ACAGCGTACA AGTTAATATT GAGATTCATG TACAGGATAT

       210       220       230       240       250
GGGAAGCTTG AATGAAATAT CATCCGACTT TGAAATTGAC ATTTTATTCA

       260       270       280       290       300
CTCAACTGTG GCATGACTCG GCACTTTCTT TTGCTCATCT TCCGGCTTGT

       310       320       330       340       350
AAGCGAAATA TCACAATGGA AACACGACTT TTACCTAAGA TTTGGTCTCC

       360       370       380       390       400
AAACACGTGT ATGATTAATT CAAAACGAAC AACCGTCCAT GCATCACCAT

       410       420       430       440       450
CGGAAAATGT GATGGTTATT CTGTACGAGA ATGGAACAGT CTGGATTAAC

       460       470       480       490       500
CATCGTCTTA GTGTCAAATC ACCTTGCAAT TTGGATCTGC GACAGTTTCC

       510       520       530       540       550
TTTCGATACT CAAACTTGCA TATTAATCTT TGAATCCTAT AGTCATAACT

       560       570       580       590       600
CAGAAGAAGT TGAACTTCAT TGGATGGAAG AAGCTGTCAC ATTAATGAAG

       610       620       630       640       650
CCAATTCAAC TTCCTGACTT TGATATGGTT CATTATTCAA CTAAAAAGGA

       660       670       680       690       700
AACTTTACTC TATCCAAACG GGTACTGGGA TCAGCTTCAA GTTACTTTCA

       710       720       730       740       750
CTTTCAAACG ACGATATGGA TTCTATATTA TTCAAGCCTA TGTTCCAACA

       760       770       780       790       800
TATCTTACAA TCATTGTATC TTGGGTTTCA TTCTGCATGG AACCAAAAGC

       810       820       830       840       850
TCTGCCGGCA AGAACAACTG TCGGAATCTC ATCTCTTCTA GCTCTTACTT

       860       870       880       890       900
TCCAGTTTGG AAATATTTTG AAAAATCTTC CAAGGGTTTC ATATGTGAAA

       910       920       930       940       950
GCAATGGATG TGTGGATGCT TGGATGCATA TCATTTGTCT TCGGAACCAT
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Fig. 2
Page 1

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      [redacted]        970         980         99[redacted]       1000
GGTAGAA[redacted]GCATTTGTTT GTTACATTTC CCGTTGTCAC[redacted]CAGCGTAA

      1010        1020        1030        1040        1050
GAAACGCGGA ACGACGACGG GAACGAATGA GAAATTCTCA GGTGTGGGCA

      1060        1070        1080        1090        1100
AACGGATCGT GTAGAACTAG AAGCAACGGG TATGCAAACG GGGGATCTGT

      1110        1120        1130        1140        1150
AATCTCACAT TATCATCCAA CAAGCAATGG AAATGGGAAT AATAATCGAC

      1160        1170        1180        1190        1200
ATGATACACC TCAAGTTACT GGAAGAGGAT CACTTCATCG AAACGGGCCA

      1210        1220        1230        1240        1250
CCATCTCCAT TAAACCTTCA AATGACTACA TTTGATTCGG AGATCCCTCT

      1260        1270        1280        1290        1300
GACTTTTGAT CAGCTGCCAG TTTCCATGGA ATCCGATAGA CCCCTGATTG

      1310        1320        1330        1340        1350
AAGAGATGCG ATCAACATCA CCACCTCCAC CATCTGGATG TCTGGCCAGA

      1360        1370        1380        1390        1400
TTCCATCCGG AAGCAGTGGA CAAATTCTCC ATTGTAGCTT TTCCATTGGC

      1410        1420        1430        1440        1450
ATTTACAATG TTTAATCTTG TCTACTGGTG GCACTATTTG TCTCAAACTT

      1460        1470
TCGATCAAAA CTATCAGTGA
```

Fig. 2
Page 2

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                  20         30         40         50
MKFIPEI[redacted]LLLFVHSTQA KGKRRKCPEG AWSEGKIMN[redacted]SNYTKMLP

        60         70         80         90        100
DAEDSVQVNI EIHVQDMGSL NEISSDFEID ILFTQLWHDS ALSFAHLPAC

       110        120        130        140        150
KRNITMETRL LPKINSPNTC MINSKRTTVH ASPSENVMVI LYENGTVWIN

       160        170        180        190        200
HRLSVKSPCN LDLRQFPFDT QTCILIFESY SHNSEEVELH WMEEAVTLMK

       210        220        230        240        250
PIQLPDFDMV HYSTKKETLL YPNGYWDQLQ VTFTFKRRYG FYIIQAYVPT

       260        270        280        290        300
YLTIIVSWVS FCMEPKALPA RTTVGISSLL ALTFQFGNIL KNLPRVSYVK

       310        320        330        340        350
AMDVWMLGCI SFVFGTMVEL AFVCYISRCQ NSVRNAERRR ERMRNSQVWA

       360        370        380        390        400
NGSCRTRSNG YANGGSVISH YHPTSNGNGN NNRHDTPQVT GRGSLHRNGP

       410        420        430        440        450
PSPLNLQMTT FDSEIPLTFD QLPVSMESDR PLIEEMRSTS PPPPSGCLAR

       460        470        480
FHPEAVDKFS IVAFPLAFTM FNLVYWWHYL SQTFDQNYQ
```

Fig. 3

MOD-1 is similar to ligand-gated ion channels

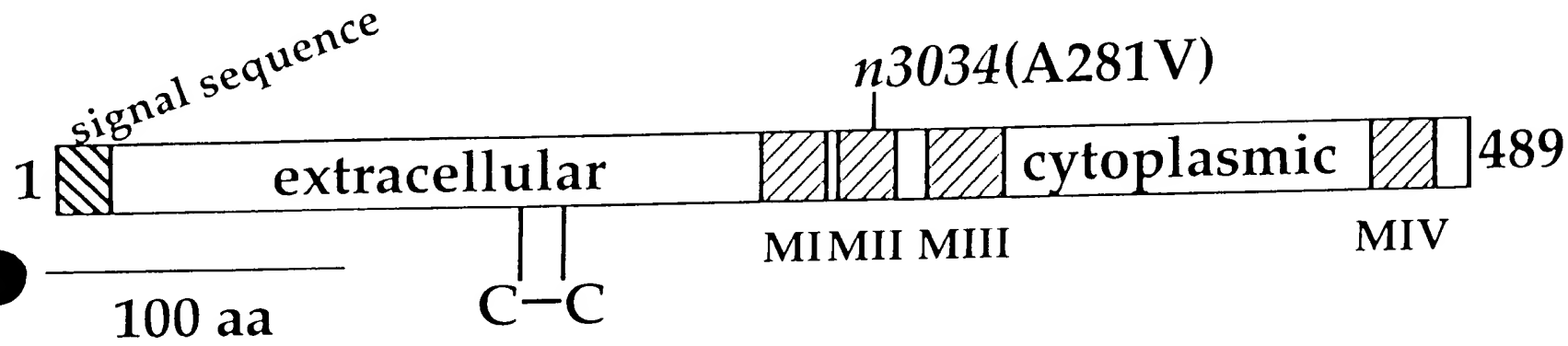

Fig. 4

ok103 is a 4135 bp deletion allele of *mod-1*

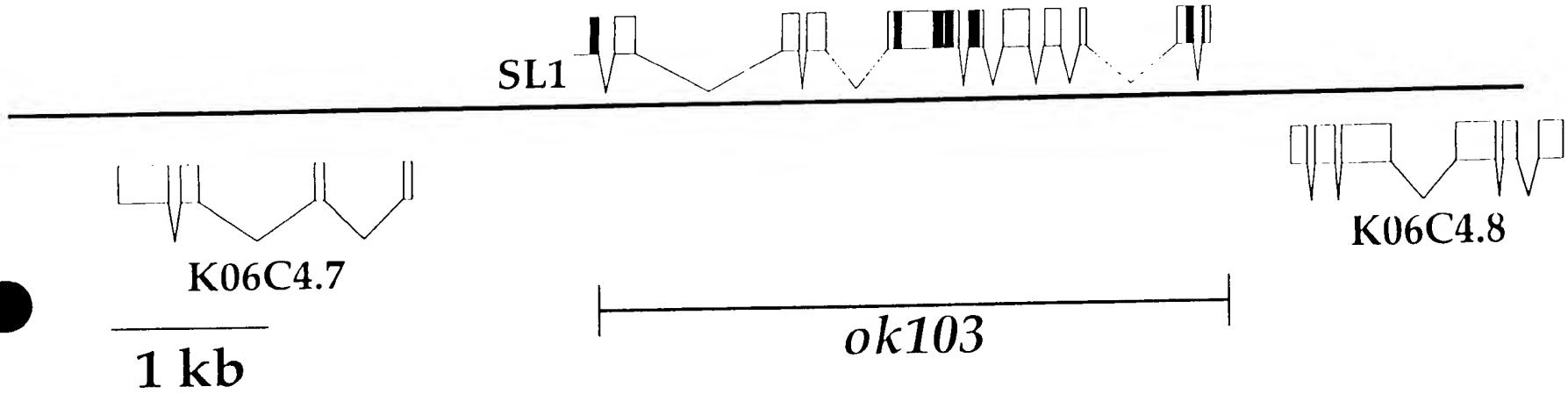

Fig. 5

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                  20          30          40          50          60
TCATGTTTCA CGGAACGACG AATTTATCCC GTCGTTTCTT CCTTTCCGTT TTAACTCATA

         70          80          90         100         110         120
TCTCTTCCTG GATCCTTCAG AGCTCTTGTC AATTCCTCAC GTTTTTTTTT GTTTTTTCGT

        130         140         150         160         170         180
CGTTTAATTG TGGAAACACA TATCCGTCCT CTTTGAAACA GCATCAGAAA ACTTTCTGCT

        190         200         210         220         230         240
CTCCGTGTCC TTCTACTTAC TCTGATTGCC TTAGTTAGTC ACATCGCAAG CAACAACTAA

        250         260         270         280         290         300
CTGCCAATGG GAGGAGCCAG TTGGAGCAGG GTGCGTGCTC GGTGCTCTTT TCAGAAGGTT

        310         320         330         340         350         360
TTCTCTTGTG CCAGCATGCT TTTTTGAGGC TGTGTCATCA CAATGAACAT GTGTGAGTTC

        370         380         390         400         410         420
ATCCGTCTGG ATTATTCTTT TTCTTACGTC TTCTGAGTAC TTCATACTTT CCAAATTTTT

        430         440         450         460         470         480
CAACTGAACT TTTCTTCTTT TCTCATTGAA GTGGTTTGGT TTTGGTCGCG TGATCAACGG

        490         500         510         520         530         540
ATCCTACTTT TTTGAAACAA AATGTTTTTG AAGTTTCACA GACTGATTTC GGGGTTTTTT

        550         560         570         580         590         600
CAAAGAATAT ATTCCCTCTC GAGCAAGAGA AAATTCCAGA AAATAGTAGT TTTTTTCAAT

        610         620         630         640         650         660
TAGTCGTTTC ATTTGTACTA GCTAAAAAAC TTGCAACTTA TGGCTTTAAA ACATGTGTTG

        670         680         690         700         710         720
GCTTCATACA AAAACATTTA ACTAGTGTTT TTCCAGTTTT GTGTTCGTTT CATTTTCTCA

        730         740         750         760         770         780
CCAAACTGAC AATAATTACT TTCTGTGAAC GTGTTTTGTA GGCAAGCTCC CGAATATTTT

        790         800         810         820         830         840
TTTCTCTTCT CACGTCTTGT TATTTTCTCG ATTTTATTTT CTGAATCTGT GCGGTTTTCA

        850         860         870         880         890         900
ATCAATTTGA TTGCGATAAT TATTCTATCA GAAATATATT TTCAGAAATC CAAATACTCC

        910         920         930         940         950         960
AGGTGCCAAT GCGGTGAAAG AAAATTATGA AGTTTATTCC TGAAATCACA CTACTCTTGC

        970         980         990        1000        1010        1020
TTTTATTTGT ACACTCTACA CAGGTTAGTT TCTCTTGAAT GTCCATTTTA ATATTTATAG

       1030        1040        1050        1060        1070        1080
AACACTTTTA TGTACATTGT GTTGGTATTC AATTCGAAAA ACAATGAAAT TTATTTCTAA

       1090        1100        1110        1120        1130        1140
ATAACTGCGT TTCTGGGGTT TCTATCAGCA CTTACTAGCT GACAAAAACT TTTCCGTATT
```

Fig. 6
Page 1

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      1150        1160        1170        1180        1190        1200
CGGAATTAGA TTTTTATGCA AGCAATGTTT CATTTTTACA CAGTATAGTA TTTATTCTTA

      1210        1220        1230        1240        1250        1260
CTTTTGATTA TATTGCTCGC ACCCTAAATG ACAGGTATTA GAAATTAACC GCTTTTCAGA

      1270        1280        1290        1300        1310        1320
GTATTTTTAA TCTTCTTAGT ACTAGTTTAG TTCTTTAAAT AAGAAACCAT CTAGTTTTTC

      1330        1340        1350        1360        1370        1380
ATTATCACTC AACTTCAGTC GGACAAATTT TAAATTTTTT ACTCGATAAA AAAATTTTAT

      1390        1400        1410
AATTCAGACA AATTATGTCT TCTCATTTTT GATCGCT
```

Fig. 6
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        1          20          30          40          50          60
TCATGTTTCA CGGAACGACG AATTTATCCC GTCGTTTCTT CCTTTCCGTT TTAACTCATA

       70          80          90         100         110         120
TCTCTTCCTG GATCCTTCAG AGCTCTTGTC AATTCCTCAC GTTTTTTTTT GTTTTTTCGT

      130         140         150         160         170         180
CGTTTAATTG TGGAAACACA TATCCGTCCT CTTTGAAACA GCATCAGAAA ACTTTCTGCT

      190         200         210         220         230         240
CTCCGTGTCC TTCTACTTAC TCTGATTGCC TTAGTTAGTC ACATCGCAAG CAACAACTAA

      250         260         270         280         290         300
CTGCCAATGG GAGGAGCCAG TTGGAGCAGG GTGCGTGCTC GGTGCTCTTT TCAGAAGGTT

      310         320         330         340         350         360
TTCTCTTGTG CCAGCATGCT TTTTTGAGGC TGTGTCATCA CAATGAACAT GTGTGAGTTC

      370         380         390         400         410         420
ATCCGTCTGG ATTATTCTTT TTCTTACGTC TTCTGAGTAC TTCATACTTT CCAAATTTTT

      430         440         450         460         470         480
CAACTGAACT TTTCTTCTTT TCTCATTGAA GTGGTTTGGT TTTGGTCGCG TGATCAACGG

      490         500         510         520         530         540
ATCCTACTTT TTTGAAACAA AATGTTTTTG AAGTTTCACA GACTGATTTC GGGGTTTTTT

      550         560         570         580         590         600
CAAAGAATAT ATTCCCTCTC GAGCAAGAGA AAATTCCAGA AAATAGTAGT TTTTTTCAAT

      610         620         630         640         650         660
TAGTCGTTTC ATTTGTACTA GCTAAAAAAC TTGCAACTTA TGGCTTTAAA ACATGTGTTG

      670         680         690         700         710         720
GCTTCATACA AAAACATTTA ACTAGTGTTT TTCCAGTTTT GTGTTCGTTT CATTTTCTCA

      730         740         750         760         770         780
CCAAACTGAC AATAATTACT TTCTGTGAAC GTGTTTTGTA GGCAAGCTCC CGAATATTTT

      790         800         810         820         830         840
TTTCTCTTCT CACGTCTTGT TATTTTCTCG ATTTTATTTT CTGAATCTGT GCGGTTTTCA

      850         860         870         880         890         900
ATCAATTTGA TTGCGATAAT TATTCTATCA GAAATATATT TTCAGAAATC CAAATACTCC

      910         920         930         940         950         960
AGGTGCCAAT GCGGTGAAAG AAAATTATGA AGTTTATTCC TGAAATCACA CTACTCTTGC

      970         980         990        1000        1010        1020
TTTTATTTGT ACACTCTACA CAGGTTAGTT GGTTGATTCT AGATCTCTTG CCTCCTAGCT

     1030        1040        1050        1060        1070        1080
TGCAAGGATA ATATAATTGA ATTGTTTTTG AGGAGTGCAA AGATTGAATA GTTTTCTATA

     1090        1100        1110        1120        1130        1140
TTTAGGCTAA AGGAAAACGA CGGAAATGTC CGGAGGGTGC GTGGTCGGAA GGAAAGATTA
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Fig. 7
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1150        1160        1170        1180        1190        1200
TGAACACGAT CATGAGCAAC TACACGAAAA TGTTGCCCGA CGCGGAGGAC AGCGTACAAG

1210        1220        1230        1240        1250        1260
TTAATATTGA GATTCATGTA CAGGTTGGTA GACTCTATAA TTGCACACCA ATATGTGAAA

1270        1280        1290        1300        1310        1320
GTTTTCTTTA AAATTAAACT GCTGTAAATG ACTTTTGAAT AAGTTTATCA GATAGAAATT

1330        1340        1350        1360        1370        1380
GTCTGAACTT TTCGATTCAA ACTTTCCGAA CTTCAAAGCG GTTCCAAATT ACTCACTTCC

1390        1400        1410        1420        1430        1440
ATTTATCTCT TTGCTACAAT TTCTCCCACA AAGCCTTTTT CTTCATTTAA CGTTCTTTTT

1450        1460        1470        1480        1490        1500
TATGTCGTTG TTCTTACAAA CAATTTCGTC TCCTTGATGA ACTGCTTGAA CTGAGAATAG

1510        1520        1530        1540        1550        1560
TCACATGAGG ATAAATTTGA TGGAATGACA AGTTTTGTGC CCAGAAGGCA GTTTTGCACT

1570        1580        1590        1600        1610        1620
GAACTTGTTC AGTTGCAGAC ACATCTCAAA ACACAGAAGA TGAGTGGAAA ACTAGTGAGA

1630        1640        1650        1660        1670        1680
GACTGCCAAA AGTCGAAGGG ATAATGAAAA TTTGTTGCAA ATGAATTCTG CGAAGTTATG

1690        1700        1710        1720        1730        1740
TGAAAAATTA TTGGATTGGG AGTTGTGGGA GTGAAGAGAT GGGTCAAAAG CCATCAATCT

1750        1760        1770        1780        1790        1800
TGAATGCTTC GGTCAAAGAT TTGTTTCTCA TATGTTTACA ACACTGAAAA CAATCTATCC

1810        1820        1830        1840        1850        1860
TAGAAATGTT TGAACCACCC TCTAAAGTCC TTCCGTATAT TTTTTCATCT TTATACCGAC

1870        1880        1890        1900        1910        1920
CAGAATTCAA GAGTTGTTTG AAATAACTTC CTCTTTTTTG GAGAATATGT ACTCAGATTT

1930        1940        1950        1960        1970        1980
TTACATTCAA AATTTATATA TTTTCAAATA GAAAAAGTGC CAAGTACCAG AAACTTTTAT

1990        2000        2010        2020        2030        2040
CAAGTTGGCG GCACTTTGGA GAGTGAATTT GATGAAAAAG TGTTTGATAA GTTTGTCGGG

2050        2060        2070        2080        2090        2100
CAAACTGGTC CCCTGGGTGG GGAAATGGTG GCATTTTTGG AAACATTTTC ATAGTCGAAG

2110        2120        2130        2140        2150        2160
AAGTGGAACA AGAAAATTGG AAAATAGAGA TACATATGTA TATGAAAATA GAATTGAACA

2170        2180        2190        2200        2210        2220
GGAACTTATT TTTATTTTCA GGATATGGGA AGCTTGAATG AAATATCATC CGACTTTGAA

2230        2240        2250        2260        2270        2280
ATTGACATTT TATTCACTCA ACTGTGGCAT GACTCGGCAC TTTCTTTTGC TCATCTTCCG
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Fig. 7
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2290       2300       2310       2320       2330       2340
GCTTGTAAGC GGTAAGAAAT CTTTGTATTA GAAGGGAAAA ATATTTAAAT TAATGAAATT

2350       2360       2370       2380       2390       2400
TCAGAAATAT CACAATGGAA ACACGACTTT TACCTAAGAT TTGGTCTCCA AACACGTGTA

2410       2420       2430       2440       2450       2460
TGATTAATTC AAAACGAACA ACCGTCCATG CATCACCATC GGAAAATGTG ATGGTTATTC

2470       2480       2490       2500       2510       2520
TGTACGAGGT ATGATTTTTG ATTTTGTGAC GTCACAAACA GAGCATGTCT AAGGGCATGT

2530       2540       2550       2560       2570       2580
TGTAGCAAGA AAAAAACGGA TTCTTGTCTC TGTCGACGTT TCCTAAGTAT TGTGAATTAT

2590       2600       2610       2620       2630       2640
TTATAATACA TCACTCTAAT TACGTGAATA CTTACACCTT TAACTGGGTG AAGGATAAAA

2650       2660       2670       2680       2690       2700
TAGAGAAGGA GACGTTGAAA AAGCTCTTCG GTAGATTAAA GAGTCTAGAA TCGACATATG

2710       2720       2730       2740       2750       2760
TATTCATGTT TCTCGGTTCA GGGAAATAAG TGATTTTGGC GAAAAAGAGT TAGACGACAT

2770       2780       2790       2800       2810       2820
TTTTTAGAAA ACTAAAACTA TATTCTCGAA CCCAAATCAG TCTAATGGTT TTCAGCAAAA

2830       2840       2850       2860       2870       2880
AGTATGAAAT ATACAATGTT TGTTTCAGAA TACCCAGTAC AAAATTTGAA GTTTTTCAGA

2890       2900       2910       2920       2930       2940
ATGGAACAGT CTGGATTAAC CATCGTCTTA GTGTCAAATC ACCTTGCAAT TTGGATCTGC

2950       2960       2970       2980       2990       3000
GACAGTTTCC TTTCGATACT CAAACTTGCA TATTAATCTT TGAATCCTAT AGTCATAACT

3010       3020       3030       3040       3050       3060
CAGAAGAAGT TGAACTTCAT TGGATGGAAG AAGCTGTCAC ATTAATGAAG CCAATTCAAC

3070       3080       3090       3100       3110       3120
TTCCTGACTT TGATATGGTT CATTATTCAA CTAAAAAGGA AACTTTACTC TATCCAAACG

3130       3140       3150       3160       3170       3180
GGTACTGGGA TCAGCTTCAA GTTACTTTCA CTTTCAAACG ACGATATGGA TTCTATATTA

3190       3200       3210       3220       3230       3240
TTCAAGCCTA TGTTCCAACA TATCTTACAA TCATTGTATC TTGGGTTTCA TTCTGCATGG

3250       3260       3270       3280       3290       3300
AACCAAAAGC TCTGCCGGCA AGAACAACTG TCGGAATCTC ATCTCTTCTA GTTCTTACTT

3310       3320       3330       3340       3350       3360
TCCAGTTTGG AAATATTTTG AAAAATCTTC CAAGGGTTTC ATATGTGAAA GGTTTGTTTT

3370       3380       3390       3400       3410       3420
TTTTCTTTTT CAAACAAATA AAAAAAAAGA TAAACAAATA TTTGTTTCAG CAATGGATGT
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Fig. 7
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3430        3440        3450        3460        3470        3480
GTGGATGCTT GGATGCATAT CATTTGTCTT CGGAACCATG GTAGAATTGG CATTTGTTTG

3490        3500        3510        3520        3530        3540
TTACATTTCC CGTTGTCAGA ACAGCGTAAG AAAGTGAGTT GGCATAAGAG TTTTCTCACG

3550        3560        3570        3580        3590        3600
TGGAGGGAAG TAATTAAATT TTGGGTGTCA TATGAAAATA TCAAAAACAA TATCAGGAAA

3610        3620        3630        3640        3650        3660
TTGAATTTCA CTATGATTTC GTAGTAAACA AATTACAGCG CGGAACGACG ACGGGAACGA

3670        3680        3690        3700        3710        3720
ATGAGAAATT CTCAGGTGTG GGCAAACGGA TCGTGTAGAA CTAGAAGCAA CGGGTATGCA

3730        3740        3750        3760        3770        3780
AACGGGGGAT CTGTAATCTC ACATTATCAT CCAACAAGCA ATGGAAATGG GAATAATAAT

3790        3800        3810        3820        3830        3840
CGACATGATA CACCTCAAGT TACTGGAAGG TTAGCAATCT CTATGATAGC ATTTATCAAT

3850        3860        3870        3880        3890        3900
TATTAAAGAA CTCTGGAATT AGTTTTTAAA GTATAAATAA ATCTCTATTT CTTGCGACCT

3910        3920        3930        3940        3950        3960
ACATTGAACT TAATAGTTAT GTTTTACAGA GGATCACTTC ATCGAAACGG GCCACCATCT

3970        3980        3990        4000        4010        4020
CCATTAAACC TTCAAATGAC TACATTTGAT TCGGAGATCC CTCTGACTTT TGATCAGGTG

4030        4040        4050        4060        4070        4080
AGTCTTACAT TGAGTTCAAA CTTTTTGAAT TTAAGCGTTC TATCTGATAA AGTTCTTCGG

4090        4100        4110        4120        4130        4140
TGGTTTTATA ATTTTTGATT CATAAACTTA CCCACTCCTT TCTCACTAAC ATTTTACCCT

4150        4160        4170        4180        4190        4200
GTTCAGCTGC CAGTTTCCAT GGAATCCGAT AGACCCCTGA TTGAAGAGGT AACTGTGAAA

4210        4220        4230        4240        4250        4260
GTAGTCAATT AATTCCCTGT GTTTCTACCC CACTCAATCC TTTTGTATTT TTTGTTCAGT

4270        4280        4290        4300        4310        4320
CTATCCACTA TCAATGTCTT ATCACCTCTA GATACTGTTT AGAAGAAAAT ATTGTTCACA

4330        4340        4350        4360        4370        4380
GTTATGGAAA TCACATATAC TTTGTTCTGG AATTGTATAT GTATGCTTTG AAAAAGCACA

4390        4400        4410        4420        4430        4440
TTAGAATACT ACAAACATTA GTTTCCATCA GATTTTTGAT TTATCAAAAC CGTTATATTA

4450        4460        4470        4480        4490        4500
GACACTCTTA AGTTATCATA TTCTAATTTC CAAGAATGTT ATATTTTGAA GAAGCCGGTG

4510        4520        4530        4540        4550        4560
ATTGTCAAAA AGATTGAAAA CTCCGAGTTT CTATATATGC GAAATTTTCA CTTCAGCCCA
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      45[redacted]      4580       4590       4600[redacted]      4610       4620
CACACACACA CACACATTCA CGAAACTTTG TGTTGTTTAT GTTACTTATA TGTTATCTTT

      4630       4640       4650       4660       4670       4680
TCTGTCTGAT CATGGTTTTC GGACTGAAAT TGTGTTAATC GGAAGTTATA TGTGAGCCAC

      4690       4700       4710       4720       4730       4740
ATTGATTAAA CCTGTGAGAG ATGCCCATTT GTACTCATTT TACGACTGTC TCATGTCCAA

      4750       4760       4770       4780       4790       4800
ACACCATGTT TATTGTAATT ACCAGGCTAC TATTTGCAGA TGCGATCAAC ATCACCACCT

      4810       4820       4830       4840       4850       4860
CCACCATCTG GATGTCTGGC CAGATTCCAT CCGGAAGCAG TGGACAAATT CTCCATTGTA

      4870       4880       4890       4900       4910       4920
GCTTTTCCAT TGGCATTTAC AATGTTTAAT GTTAGTTAAT CCACAGTTAA AAATTCCCAT

      4930       4940       4950       4960       4970       4980
AATCATAAAT ATCTCGACTT TTCAGCTTGT CTACTGGTGG CACTATTTGT CTCAAACTTT

      4990       5000       5010       5020       5030       5040
CGATCAAAAC TATCAGTGAT TGAAGTTTAT CCCTTTTAAT TCCAATAATT CACAGTTGCC

      5050       5060       5070       5080       5090       5100
GGTATCTACC TCCATTCTTT TCCGATGATT CGCAGTTTTT CACAGGGTTC AAATGTATCT

      5110       5120       5130       5140       5150       5160
CGTTCAATCT TTTTATGGTT ATTTCTCTTG AATGTCCATT TTAATATTTA TAGAACACTT

      5170       5180       5190       5200       5210       5220
TTATGTACAT TGTGTTGGTA TTCAATTCGA AAAACAATGA AATTTATTTC TAAATAACTG

      5230       5240       5250       5260       5270       5280
CGTTTCTGGG GTTTCTATCA GCACTTACTA GCTGACAAAA ACTTTTCCGT ATTCGGAATT

      5290       5300       5310       5320       5330       5340
AGATTTTTAT GCAAGCAATG TTTCATTTTT ACACAGTATA GTATTTATTC TTACTTTTGA

      5350       5360       5370       5380       5390       5400
TTATATTGCT CGCACCCTAA ATGACAGGTA TTAGAAATTA ACCGCTTTTC AGAGTATTTT

      5410       5420       5430       5440       5450       5460
TAATCTTCTT AGTACTAGTT TAGTTCTTTA AATAAGAAAC CATCTAGTTT TTCATTATCA

      5470       5480       5490       5500       5510       5520
CTCAACTTCA GTCGGACAAA TTTTAAATTT TTTACTCGAT AAAAAAATTT TATAATTCAG

      5530       5540       5550
ACAAATTATG TCTTCTCATT TTTGATCGCT
```

Fig. 7
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        1          20         30         40         50         60
ATGAAGTTTA TTCCTGAAAT CACACTACTC TTGCTTTTAT TTGTACACTC TACACAGGCT

       70         80         90        100        110        120
AAAGGAAAAC GACGGAAATG TCCGGAGGGT GCGTGGTCGG AAGGAAAGAT TATGAACACG

      130        140        150        160        170        180
ATCATGAGCA ACTACACGAA AATGTTGCCC GACGCGGAGG ACAGCGTACA AGTTAATATT

      190        200        210        220        230        240
GAGATTCATG TACAGGATAT GGGAAGCTTG AATGAAATAT CATCCGACTT TGAAATTGAC

      250        260        270        280        290        300
ATTTTATTCA CTCAACTGTG GCATGACTCG GCACTTTCTT TTGCTCATCT TCCGGCTTGT

      310        320        330        340        350        360
AAGCGAAATA TCACAATGGA AACACGACTT TTACCTAAGA TTTGGTCTCC AAACACGTGT

      370        380        390        400        410        420
ATGATTAATT CAAAACGAAC AACCGTCCAT GCATCACCAT CGGAAAATGT GATGGTTATT

      430        440        450        460        470        480
CTGTACGAGA ATGGAACAGT CTGGATTAAC CATCGTCTTA GTGTCAAATC ACCTTGCAAT

      490        500        510        520        530        540
TTGGATCTGC GACAGTTTCC TTTCGATACT CAAACTTGCA TATTAATCTT TGAATCCTAT

      550        560        570        580        590        600
AGTCATAACT CAGAAGAAGT TGAACTTCAT TGGATGGAAG AAGCTGTCAC ATTAATGAAG

      610        620        630        640        650        660
CCAATTCAAC TTCCTGACTT TGATATGGTT CATTATTCAA CTAAAAAGGA AACTTTACTC

      670        680        690        700        710        720
TATCCAAACG GGTACTGGGA TCAGCTTCAA GTTACTTTCA CTTTCAAACG ACGATATGGA

      730        740        750        760        770        780
TTCTATATTA TTCAAGCCTA TGTTCCAACA TATCTTACAA TCATTGTATC TTGGGTTTCA

      790        800        810        820        830        840
TTCTGCATGG AACCAAAAGC TCTGCCGGCA AGAACAACTG TCGGAATCTC ATCTCTTCTA

      850        860        870        880        890        900
GTTCTTACTT TCCAGTTTGG AAATATTTTG AAAAATCTTC CAAGGGTTTC ATATGTGAAA

      910        920        930        940        950        960
GCAATGGATG TGTGGATGCT TGGATGCATA TCATTTGTCT TCGGAACCAT GGTAGAATTG

      970        980        990       1000       1010       1020
GCATTTGTTT GTTACATTTC CCGTTGTCAG AACAGCGTAA GAAACGCGGA ACGACGACGG

     1030       1040       1050       1060       1070       1080
GAACGAATGA GAAATTCTCA GGTGTGGGCA AACGGATCGT GTAGAACTAG AAGCAACGGG

     1090       1100       1110       1120       1130       1140
TATGCAAACG GGGGATCTGT AATCTCACAT TATCATCCAA CAAGCAATGG AAATGGGAAT
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Fig. 8
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      1150        1160        1170        1180        1190        1200
AATAATCGAC ATGATACACC TCAAGTTACT GGAAGAGGAT CACTTCATCG AAACGGGCCA

      1210        1220        1230        1240        1250        1260
CCATCTCCAT TAAACCTTCA AATGACTACA TTTGATTCGG AGATCCCTCT GACTTTTGAT

      1270        1280        1290        1300        1310        1320
CAGCTGCCAG TTTCCATGGA ATCCGATAGA CCCCTGATTG AAGAGATGCG ATCAACATCA

      1330        1340        1350        1360        1370        1380
CCACCTCCAC CATCTGGATG TCTGGCCAGA TTCCATCCGG AAGCAGTGGA CAAATTCTCC

      1390        1400        1410        1420        1430        1440
ATTGTAGCTT TTCCATTGGC ATTTACAATG TTTAATCTTG TCTACTGGTG GCACTATTTG

      1450        1460        1470
TCTCAAACTT TCGATCAAAA CTATCAGTGA
```

Fig. 8
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Fig. 9 a

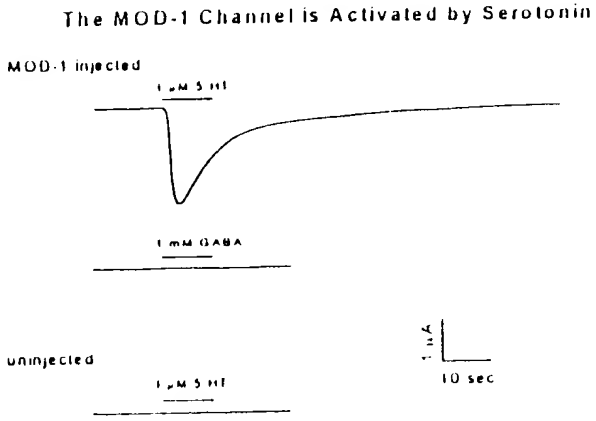


Fig. 9 b

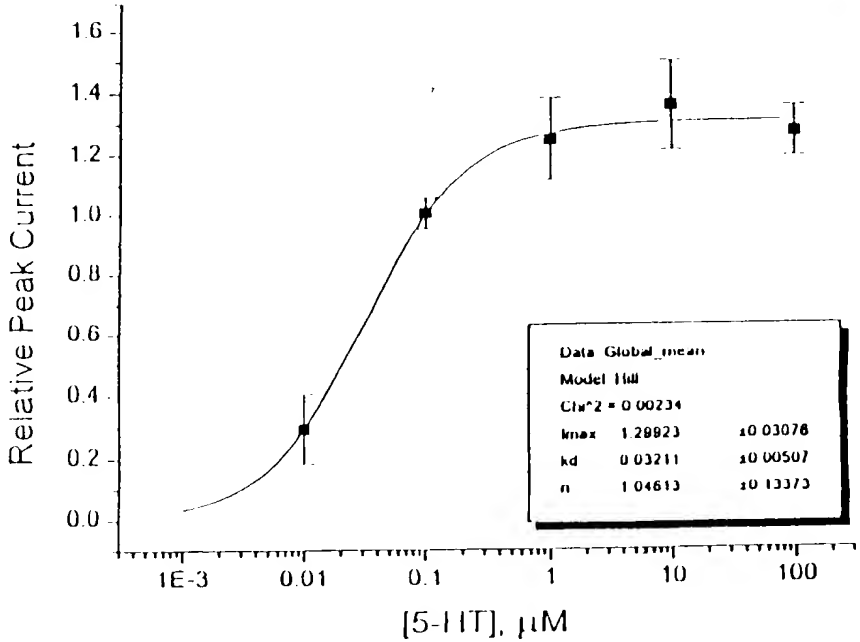


Fig. 9 c

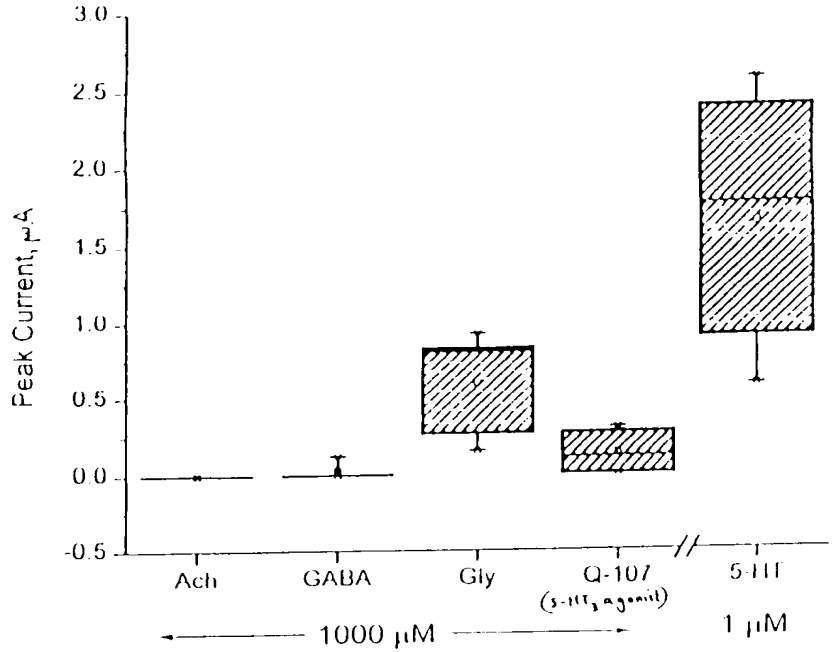
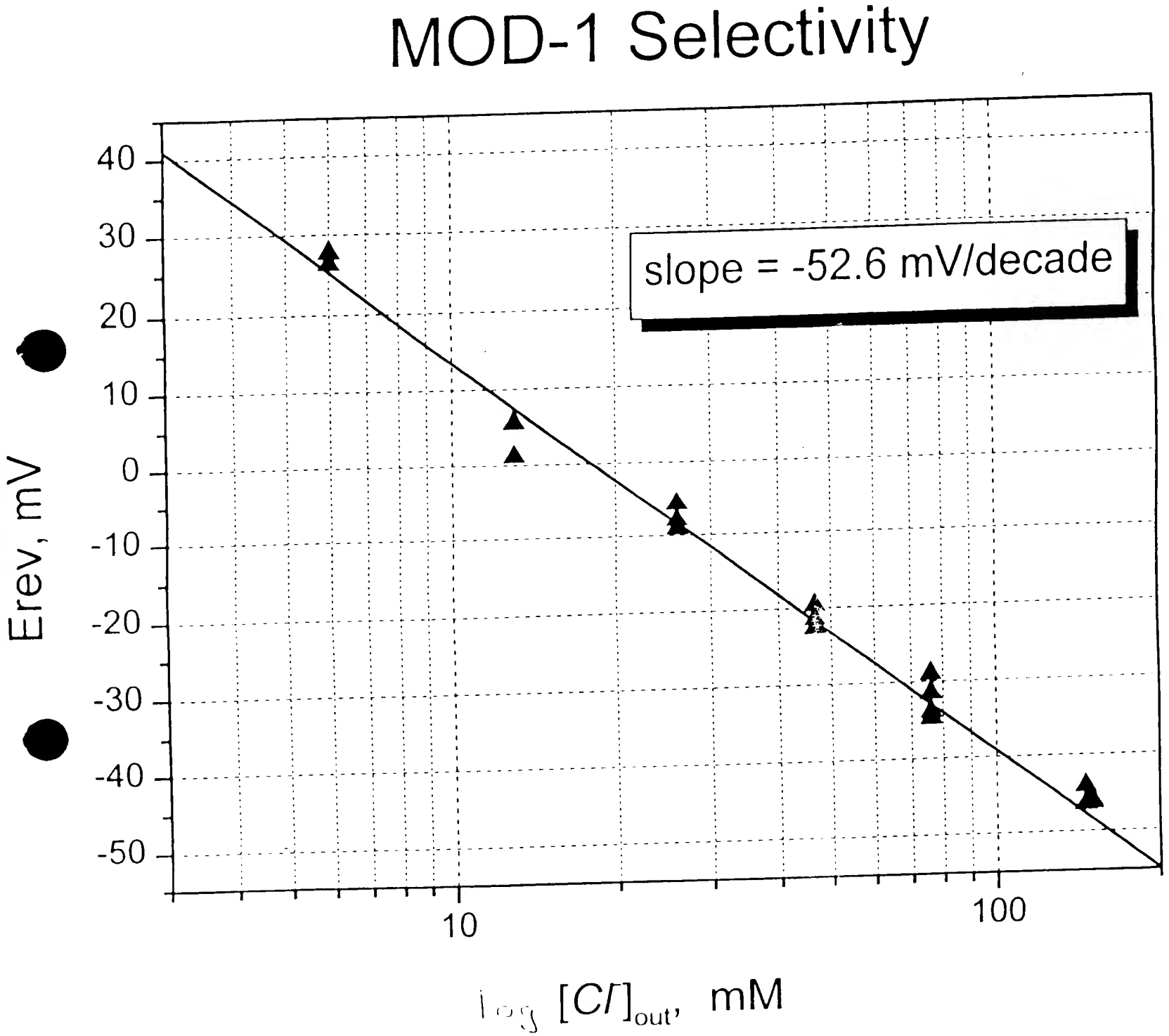


Fig. 9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log [Cl]out, mM

Fig. 10

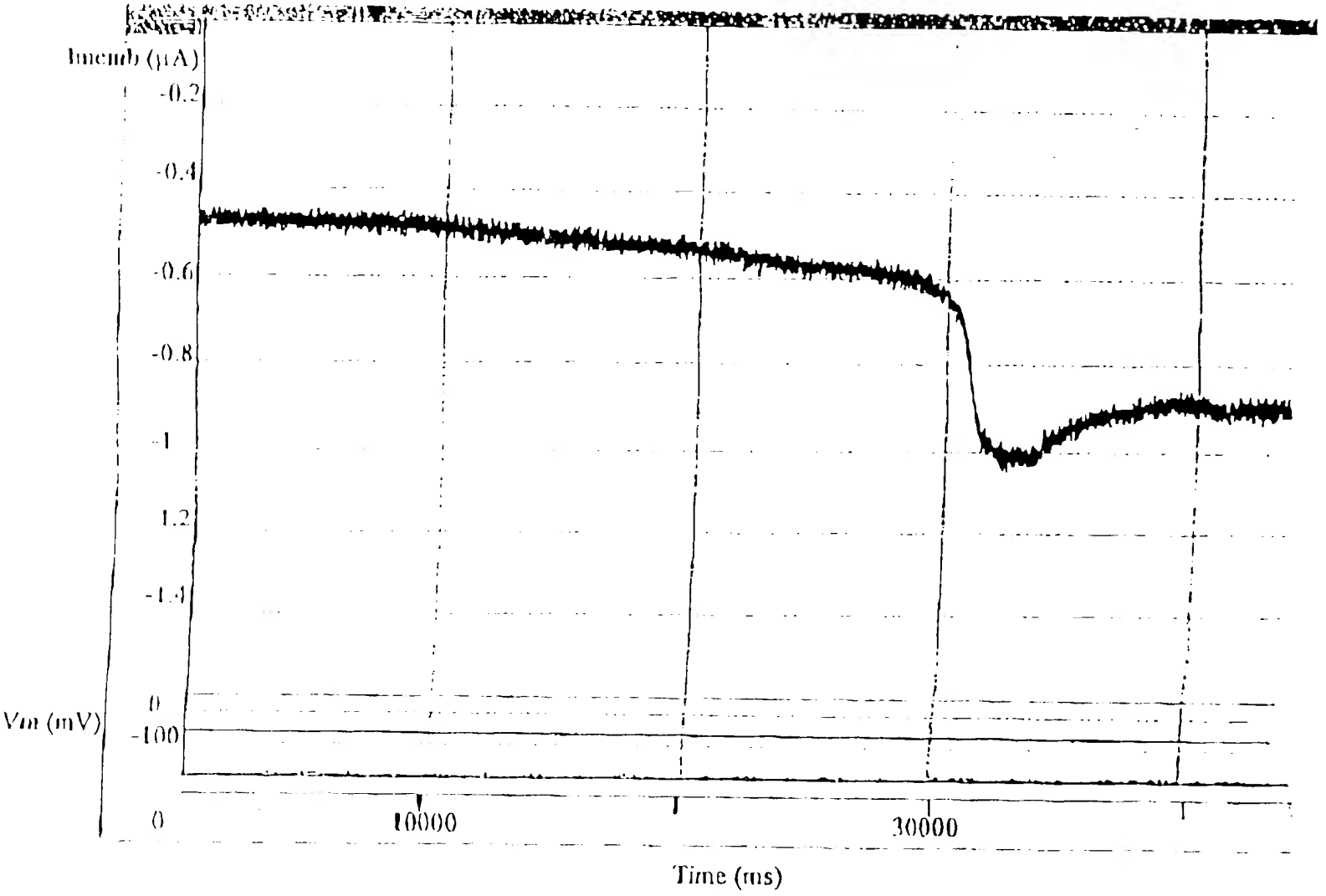

Figure 11

04/01/2000